



QuarkNet has been a great benefit to me and to my students since I joined the program in 1999. My QuarkNet activity began with a particle physics summer research project that assisted in the March 2001 Run II D0 detector upgrade at Fermilab. I enjoyed the satisfaction of making a positive contribution to this experimental particle physics effort. Subsequently, I hosted and directed numerous after-school gatherings and summer workshops related to particle physics and other current physics topics. These meetings attracted physics and chemistry teachers from the Boston area and as far afield as Providence, Rhode Island, and Springfield, Massachusetts. Our next one is scheduled for February 8, 2018 with Prof. Chris Fuchs describing the QBism approach to quantum mechanics.

In conjunction with QuarkNet, I have traveled to Fermilab and talked with particle physics researchers about their work and traveled to the LHC at CERN to see the accelerators and detectors and to work with other teachers from around the world developing curriculum and classroom materials related to particle physics. To promote interest in QuarkNet, I have given talks at local and national physics teachers meetings about my work and the opportunities for teachers and students available in QuarkNet.

My QuarkNet experience has given me more confidence in discussing modern particle physics in response to questions from my students and allowed me to develop curriculum that allows them to perform analysis on modern particle physics data so they see the experimental basis for ideas they have heard about. In addition, I have introduced my high school students to collection and analysis of data from Fermilab cosmic ray detectors in our classroom. By participating in the yearly QuarkNet Particle Physics Masterclass, my students have analyzed current particle physics data and discussed the meaning of their results via videoconference with high school students in the USA and other countries and with moderators at Fermilab. As a result, they have tasted the excitement of modern collaborative science research into the age old questions: "What is the world made of?" and "What are the forces that produce change in the world?"

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